This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

RECEIVED

SEP 1 0 2001

TECH CENTER 1600/2900



SEQUENCE LISTING

FF5

<110> Chugai Seiyaku Kabushiki Kaisha, 5001, Iwamoto et

<120> Cell Calcification Suppressing Proteins and Genes of the Proteins

<130> chugai seiyaku kabushiki kaisha 5001

<140> 08/878,177

<141> 1997-06-18

<160> 7

<170> PatentIn Ver. 2.0

<210> 1

<211> 1447

<212> DNA

<213> C-11 gene, c-erg gene w/ deletion, chicken DNA

<400> 1

gaattccgcg aacgaataat tattattagc aattattagc gatcaataat cttgatcaca 60 ttatggcaag cactattaag gaagcattat cagtggtgag tgaagaccag tccttgtttg 120 agtqtqccta cqqatcqccc caccttqcaa agacagaaat gacagcctcc tcttccagtg 180 aatatgggca aacatcaaag atgagcccgc gcgttcccca gcaggactgg ttatcacagc 240 ccccggccag agttaccatt aagatggagt gtaacccaaa ccaggttaat gggtcaagga 300 attcacctga tgactgcagc gtggcaaaag gagggaaaat ggttagcagt tcagacaatg 360 ttgggatgaa ctatggaagc tacatggaag agaagcatat tccgcctcca aatatgacaa 420 ccaatgaacg aagagttatt gtgccagcag atcctacgtt atggagcaca gaccatgtac 480 ggcagtggct ggagtgggca gtgaaggagt atggtcttcc agacgtggac atcttgttgt 540 tecagaacat tgatgggaaa gagttgtgta aaatgaccaa agatgaette cagagaetea 600 egeogageta taacgcagat atcetectgt cacacetaca etaceteaga gagagaggag 660 ccacttttat ttttccaaat acatcagttt acccagaagc aacgcaaaga ataacaacaa 720 ggccagattt accttatgag caagcgagga gatcagcgtg gacgagtcac agccatccca 780 ctcagtcaaa agctacccaa ccatcatctt caacagtgcc caaaacagaa gaccagcgtc 840 ctcagttaga toottatcag attottggac cgaccagcag ccgtcttgca aatccaggga 900 gtgggcagat acagetatgg cagtteetac tggagettet gteggacage tecaacteca 960 actgcatcac ctgggagggc acaaatgggg agttcaagat gacagaccct gatgaagtgg 1020 ctcggcgttg gggagagagg aaaagcaaac ctaacatgaa ctatgacaaa ctcagccgtg 1080 cacttegeta etactatgac aaaaatatta tgactaaagt teatggtaaa egetatgeet 1140 acaaatttga tttccacgga atcgctcagg ccctccagcc tcaccctcca gaatcatcca 1200 tgtacaaata cocatcagac ctcccctaca tgagttccta ccatgcacac ccccagaaga 1260 tgaactttgt ageteeccat ecceetgett tgeeegtaac eteateeage tttttttgetg 1320 cocctaator atactggaat traccaactg gaggrateta coccaatace aggregorag 1380 etgeteatat geetteeeat ettggeacet actactaagt ggggaaagaa agaaagegee 1440 1447 aagaaaa

	_	-	_		_
_	2	7	\sim	•	7
`	_	1		_	

<211> 451

<212> PRT

<213> protein sequence from C-11 gene

<400> 2

Met Ala Ser Thr Ile Lys Glu Ala Leu Ser Val Val Ser Glu Asp Gln
1 5 10 15

Ser Leu Phe Glu Cys Ala Tyr Gly Ser Pro His Leu Ala Lys Thr Glu 20 25 30

Met Thr Ala Ser Ser Ser Glu Tyr Gly Gln Thr Ser Lys Met Ser 35 40 45

Pro Arg Val Pro Gln Gln Asp Trp Leu Ser Gln Pro Pro Ala Arg Val 50 55 60

Thr Ile Lys Met Glu Cys Asn Pro Asn Gln Val Asn Gly Ser Arg Asn 65 70 75 80

Ser Pro Asp Asp Cys Ser Val Ala Lys Gly Gly Lys Met Val Ser Ser 85 90 95

Ser Asp Asn Val Gly Met Asn Tyr Gly Ser Tyr Met Glu Glu Lys His
100 105 110

Ile Pro Pro Pro Asn Met Thr Thr Asn Glu Arg Arg Val Ile Val Pro 115 120 125

Ala Asp Pro Thr Leu Trp Ser Thr Asp His Val Arg Gln Trp Leu Glu 130 135 140

Trp Ala Val Lys Glu Tyr Gly Leu Pro Asp Val Asp Ile Leu Leu Phe 145 150 155 160

Gln Asn Ile Asp Gly Lys Glu Leu Cys Lys Met Thr Lys Asp Asp Phe 165 170 175

Gln Arg Leu Thr Pro Ser Tyr Asn Ala Asp Ile Leu Leu Ser His Leu 180 185 190

His Tyr Leu Arg Glu Arg Gly Ala Thr Phe Ile Phe Pro Asn Thr Ser

Val Tyr Pro Glu Ala Thr Gln Arg Ile Thr Thr Arg Pro Asp Leu Pro 210 215 220 Tyr Glu Gln Ala Arg Arg Ser Ala Trp Thr Ser His Ser His Pro Thr Gln Ser Lys Ala Thr Gln Pro Ser Ser Ser Thr Val Pro Lys Thr Glu Asp Gln Arg Pro Gln Leu Asp Pro Tyr Gln Ile Leu Gly Pro Thr Ser Ser Arg Leu Ala Asn Pro Gly Ser Gly Gln Ile Gln Leu Trp Gln Phe Leu Leu Glu Leu Leu Ser Asp Ser Ser Asn Ser Asn Cys Ile Thr Trp Glu Gly Thr Asn Gly Glu Phe Lys Met Thr Asp Pro Asp Glu Val Ala Arg Arg Trp Gly Glu Arg Lys Ser Lys Pro Asn Met Asn Tyr Asp Lys Leu Ser Arg Ala Leu Arg Tyr Tyr Tyr Asp Lys Asn Ile Met Thr Lys Val His Gly Lys Arg Tyr Ala Tyr Lys Phe Asp Phe His Gly Ile Ala Gln Ala Leu Gln Pro His Pro Pro Glu Ser Ser Met Tyr Lys Tyr Pro Ser Asp Leu Pro Tyr Met Ser Ser Tyr His Ala His Pro Gln Lys Met Asn Phe Val Ala Pro His Pro Pro Ala Leu Pro Val Thr Ser Ser Ser Phe Phe Ala Ala Pro Asn Pro Tyr Trp Asn Ser Pro Thr Gly Gly Ile

Tyr Pro Asn Thr Arg Leu Pro Ala Ala His Met Pro Ser His Leu Gly
435 440 445

Thr Tyr Tyr

<210> 3 <211> 1528

```
<213> c-erg gene, chicken DNA
<400> 3
gaatteegeg aacgaataat tattattage aattattage gateaataat ettgateaea 60
ttatggcaag cactattaag gaagcattat cagtggtgag tgaagaccag tccttgtttg 120
agtgtgccta cggatcgccc caccttgcaa agacagaaat gacagcctcc tcttccagtg 130
aatatgggca aacatcaaag atgagcccgc gcgttcccca gcaggactgg ttatcacagc 240
ecceggecag agttaccatt aagatggagt gtaacccaaa ccaggttaat gggtcaagga 300
attcacctga tgactgcagc gtggcaaaag gagggaaaat ggttagcagt tcagacaatg 360
ttgggatgaa ctatggaagc tacatggaag agaagcatat teegeeteea aatatgacaa 420
ccaatgaacg aagagttatt gtgccagcag atcctacgtt atggagcaca gaccatgtac 480
ggcagtggct ggagtgggca gtgaaggagt atggtcttcc agacgtggac atcttgttgt 540
tecagaacat tgatgggaaa gagttgtgta aaatgaccaa agatgaette eagagaetea 600
cgccgagcta taacgcagat atcctcctgt cacacctaca ctacctcaga gagactcctc 660
ttccacattt gacttcagat gatgttgata aggccttaca aaactctcca eggttaatgc 720
atgctagaaa cacaggagga gccactttta tttttccaaa tacatcagtt tacccagaag 780
caacqcaaaq aataacaaca aggccagatt taccttatga gcaagcgagg agatcagcgt 840
ggacgagtca cagccatece acteagtcaa aagctaceca accateatet teaacagtge 900
ccaaaacaga agaccagcgt cctcagttag atccttatca gattcttgga ccgaccagca 960
geogtettge aaatecaggg agtgggeaga tacagetatg geagtteeta etggagette 1020
tgtcggacag ctccaactcc aactgcatca cctgggaggg cacaaatggg gagttcaaga 1080
tgacagacce tgatgaagtg geteggegtt ggggagagag gaaaagcaaa cetaacatga 1140
 actatgacaa actcagccgt gcacttcgct actactatga caaaaatatt atgactaaag 1200
 ttcatggtaa acgctatgcc tacaaatttg atttccacgg aatcgctcag gccctccagc 1260
 ctcaccetee agaatcatee atgtacaaat acceateaga ceteceetae atgagtteet 1320
 accatgcaca eccecagaag atgaactttg tageteecca tecceetget ttgeeegtaa 1380
 ceteatecag ettttttget geceetaate catactggaa tteaceaact ggaggeatet 1440
 accccaatac caggetgeca getgeteata tgeetteeca tettggeace taetaetaag 1500
                                                                    1523
 tggggaaaga aagaaagcgc caagaaaa
 <210> 4
 <211> 478
 <212> PRT
 <213> protein sequence from c-erg gene
 <400> 4
 Met Ala Ser Thr Ile Lys Glu Ala Leu Ser Val Val Ser Glu Asp Gln
                                                           15
                                       10
                    5
  Ser Leu Phe Glu Cys Ala Tyr Gly Ser Pro His Leu Ala Lys Thr Glu
                                                       30
                                   25
               20
  Met Thr Ala Ser Ser Ser Glu Tyr Gly Gln Thr Ser Lys Met Ser
                                                    45
                               40
           35
  Pro Arg Val Pro Gln Gln Asp Trp Leu Ser Gln Pro Pro Ala Arg Val
                                                60
                            55
       50
```

<212> DNA

Thr 65	Ile	Lys	Met	Glu	Cys 70	Asn	Pro	Asn	Gln	Val 75	Asn,	Gly	Ser	Arg	Asn 80
Ser	Pro	Asp	Asp	Су з 85	Ser	Val	Ala	Lys	Gly 90	Gly	Lys	Met	Val	Ser 95	Ser
Ser	Asp	Asn	Val 100	Gly	Met	Asn	-	Gly 105	Ser	Tyr	Met	Glu	Glu 110	Lys	His
Ile	Pro	Pro 115	Pro	Asn	Met	Thr	Thr 120	Asn	Glu	Arg	Arg	Val 125	Ile	Val	Pro
Ala	Asp 130	Pro	Thr	Leu	Trp	Ser 135	Thr	Asp	His	Val	Arg 140	Gln	Trp	Leu	Glu
Trp	Ala	Val	Lys	Glu	Tyr 150	Gly	Leu	Pro	Asp	Val 155	Asp	Ile	Leu	Leu	Phe 160
Gln	Asn	Ile	Asp	Gly 165	Lys	Glu	Leu	C ys	Lys 170	Met	Thr	Lys	Asp	Asp 175	Phe
Gln	Arg	Leu	Thr 180	Pro	Ser	Tyr		Ala 185	Asp	Ile	Leu	Leu	Ser 190	His	Leu
His	Tyr	Leu 195	Arg	Glu	Thr	Pro	Leu 200	Pro	His	Leu	Thr	Ser 205	Asp	Asp	Val
Asp	Lys 210	Ala	Leu	Gln	Asn	Ser 215	Pro	Arg	Leu	Met	His 220	Ala	Arg	Asn	Thr
Gly 225	Gly	Ala	Thr	Phe	Ile 230	Phe	Pro	Asn	Thr	Ser 235	Val	Tyr	Pro	Glu	Ala 240
Thr	Gln	Arg	Ile	Thr 245		Arg	Pro	Asp	Leu 250		Tyr	Glu	Gln	Ala 255	Arg
Arg	Ser	Ala	Trp 260		Ser	His	Ser	His 265		Thr	Gln	Ser	Lys 270	Ala	Thr
Gln	Pro	Ser 275	Ser	Ser	Thr	Val	Pro 280		Thr	Glu	. Asp	Gln 285		Pro	Gln
Leu	Asp 290		Tyr	Gln	Ile	Leu 295		Pro	Thr	: Ser	Ser 300		Leu	Ala	Asn
Pro		/ Sei	Gly	Gln	11e 310		Leu	Trp	Glr	n Phe	Leu S	. Leu	Glu	Leu	Leu 320

261	изр	267	261	325	361	A3	0,0	,	330			1	••••	335		
Glu	Phe	Lys	Met 340	Thr	Asp	Pro	Asp	Glu 345	Val	Ala	Arg	Arg	Trp 350	Gly	Glu	
Arg	Lys	Ser 355	Lys	Pro	Asn	Met	Asn 360	Tyr	Asp	Lys	Leu	Ser 365	Arg	Ala	Leu	
Arg	Tyr 370	Tyr	Tyr	Asp	Lys	Asn 375	Ile	Met	Thr	Lys	Val 380	His	Pro	Pro	Glu	•
Ser 385	Ser	Met	Tyr	Lys	Tyr 390	Pro	Ser	Asp	Leu	Pro 395	Tyr	Met	Ser	Ser	Tyr 400	
His	Gly	Lys	Arg	Tyr 405	Ala	Tyr	Lys	Phe	Asp 410	Phe	His	Gly	Ile	Ala 415	Gln	
Ala	Leu	Gln	Pro 420		Ala	His		Gln 425	Lys	Met	Asn	Phe	Val 430		Pro	
His	Pro	Pro 435		Leu	Pro	Val	Thr 440		Ser	Ser	Phe	Phe 445		Ala	Pro	
Asn	Pro 450		Trp	Asn	Ser	Pro 455		Gly	Gly	Ile	Tyr 460	Pro	Asn	Thr	Arg	
Leu 465		Ala	a Ala	His	Met 470		Ser	His	Leu	Gly 475		Tyr	Tyr	•		
<210> 5 <211> 23 <212> DNA <213> primer for isolation of C-11 and c-erg genes																
-	00> ! cttg:		cati	tatg	gca a	agc										23
<2 <2	10> 11> 12> 13>	25 DN A	er f	or i	sola	tion	of	c-11	and	с-е	rg g	en es				
	00> catt		caa	gcac	tat	taag	g									25

```
<210> 7
<211> 25
<212> DNA
<213> primer for isolation of C-11 and c-erg genes
<400> 7
cacttagtag taggtgccaa gatgg
```